Release notes for ENDF/B Development n-094_Pu_238 evaluation

April 26, 2017

- `fizcon` Errors:

  1. The cross section and an outgoing distribution don't span the same energy region.
     MAT=9434, MF=35, MT= 18 (1): Diff limits (a)

```
ERROR(S) FOUND IN MAT=9434, MF=35, MT= 18
   SECTION DOES NOT SPAN THE SAME ENERGY RANGE AS FILE   5, MT=  18
```

- `psyche` Errors:

  1. A probability distribution is negative. This is bad.
     FILE 4 / SECTION 70 / DISTRIBUTION IS NEGATIVE / FROM -9.9953E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 3.2187E-06 (0): Neg. prob.

```
FILE  4
   SECTION  70
        DISTRIBUTION IS NEGATIVE
                 FROM -9.9953E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  3.2187E-06
```

  2. A probability distribution is negative. This is bad.
     FILE 4 / SECTION 70 / DISTRIBUTION IS NEGATIVE / FROM -9.9884E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 2.0206E-05 (0): Neg. prob.

```
FILE  4
   SECTION  70
        DISTRIBUTION IS NEGATIVE
                 FROM -9.9884E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  2.0206E-05
```

  3. A probability distribution is negative. This is bad.
     FILE 4 / SECTION 70 / DISTRIBUTION IS NEGATIVE / FROM -9.9884E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.6987E-05 (0): Neg. prob.

```
FILE  4
   SECTION  70
        DISTRIBUTION IS NEGATIVE
                 FROM -9.9884E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.6987E-05
```

  4. A probability distribution is negative. This is bad.
     FILE 4 / SECTION 72 / DISTRIBUTION IS NEGATIVE / FROM -9.9960E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 2.5034E-06 (0): Neg. prob.

```
FILE  4
   SECTION  72
        DISTRIBUTION IS NEGATIVE
                 FROM -9.9960E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  2.5034E-06
```

  5. A probability distribution is negative. This is bad.
     FILE 4 / SECTION 72 / DISTRIBUTION IS NEGATIVE / FROM -9.9887E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.9073E-05 (0): Neg. prob.

```
FILE  4
   SECTION  72
        DISTRIBUTION IS NEGATIVE
                 FROM -9.9887E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.9073E-05
```

6. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 72 / DISTRIBUTION IS NEGATIVE / FROM -9.9877E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.9372E-05 (0): Neg. prob.

```
FILE  4
   SECTION  72
        DISTRIBUTION IS NEGATIVE
                FROM -9.9877E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.9372E-05
```

7. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 73 / DISTRIBUTION IS NEGATIVE / FROM -9.9967E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.6093E-06 (0): Neg. prob.

```
FILE  4
   SECTION  73
        DISTRIBUTION IS NEGATIVE
                FROM -9.9967E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.6093E-06
```

8. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 73 / DISTRIBUTION IS NEGATIVE / FROM -9.9893E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.7166E-05 (0): Neg. prob.

```
FILE  4
   SECTION  73
        DISTRIBUTION IS NEGATIVE
                FROM -9.9893E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.7166E-05
```

9. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 73 / DISTRIBUTION IS NEGATIVE / FROM -9.9879E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.8716E-05 (0): Neg. prob.

```
FILE  4
   SECTION  73
        DISTRIBUTION IS NEGATIVE
                FROM -9.9879E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.8716E-05
```

10. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 74 / DISTRIBUTION IS NEGATIVE / FROM -9.9972E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.0729E-06 (0): Neg. prob.

```
FILE  4
   SECTION  74
        DISTRIBUTION IS NEGATIVE
                FROM -9.9972E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.0729E-06
```

11. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 74 / DISTRIBUTION IS NEGATIVE / FROM -9.9897E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.5974E-05 (0): Neg. prob.

```
FILE  4
   SECTION  74
        DISTRIBUTION IS NEGATIVE
                FROM -9.9897E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.5974E-05
```

12. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 74 / DISTRIBUTION IS NEGATIVE / FROM -9.9878E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.9252E-05 (0): Neg. prob.

```
FILE  4
   SECTION  74
        DISTRIBUTION IS NEGATIVE
                FROM -9.9878E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.9252E-05
```

13. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 75 / DISTRIBUTION IS NEGATIVE / FROM -9.9976E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 8.3447E-07 (0): Neg. prob.

```
FILE  4
   SECTION  75
        DISTRIBUTION IS NEGATIVE
                FROM -9.9976E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  8.3447E-07
```

14. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 75 / DISTRIBUTION IS NEGATIVE / FROM -9.9900E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.4961E-05 (0): Neg. prob.

```
FILE  4
   SECTION  75
        DISTRIBUTION IS NEGATIVE
                FROM -9.9900E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.4961E-05
```

15. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 75 / DISTRIBUTION IS NEGATIVE / FROM -9.9879E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.9252E-05 (0): Neg. prob.

```
FILE  4
   SECTION  75
        DISTRIBUTION IS NEGATIVE
                FROM -9.9879E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.9252E-05
```

16. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 76 / DISTRIBUTION IS NEGATIVE / FROM -9.9980E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 5.3644E-07 (0): Neg. prob.

```
FILE  4
   SECTION  76
        DISTRIBUTION IS NEGATIVE
                FROM -9.9980E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  5.3644E-07
```

17. A probability distribution is negative. This is bad.
FILE 4 / SËCTION 76 / DISTRIBUTION IS NEGATIVE / FROM -9.9902E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.4305E-05 (0): Neg. prob.

```
FILE  4
   SECTION  76
        DISTRIBUTION IS NEGATIVE
                FROM -9.9902E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.4305E-05
```

18. A probability distribution is negative. This is bad.
FILE 4 / SECTION 76 / DISTRIBUTION IS NEGATIVE / FROM -9.9878E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.9610E-05 (0): Neg. prob.

```
FILE  4
   SECTION  76
        DISTRIBUTION IS NEGATIVE
                FROM -9.9878E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.9610E-05
```

19. A probability distribution is negative. This is bad.
FILE 4 / SECTION 77 / DISTRIBUTION IS NEGATIVE / FROM -9.9987E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 2.9802E-07 (0): Neg. prob.

```
FILE  4
   SECTION  77
        DISTRIBUTION IS NEGATIVE
                FROM -9.9987E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  2.9802E-07
```

20. A probability distribution is negative. This is bad.
FILE 4 / SECTION 77 / DISTRIBUTION IS NEGATIVE / FROM -9.9907E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.2994E-05 (0): Neg. prob.

```
FILE  4
   SECTION  77
        DISTRIBUTION IS NEGATIVE
                FROM -9.9907E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.2994E-05
```

21. A probability distribution is negative. This is bad.
FILE 4 / SECTION 77 / DISTRIBUTION IS NEGATIVE / FROM -9.9877E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.9908E-05 (0): Neg. prob.

```
FILE  4
   SECTION  77
        DISTRIBUTION IS NEGATIVE
                FROM -9.9877E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.9908E-05
```

22. A probability distribution is negative. This is bad.
FILE 4 / SECTION 78 / DISTRIBUTION IS NEGATIVE / FROM -9.9993E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.7881E-07 (0): Neg. prob.

```
FILE  4
   SECTION  78
        DISTRIBUTION IS NEGATIVE
                FROM -9.9993E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.7881E-07
```

23. A probability distribution is negative. This is bad.
FILE 4 / SECTION 78 / DISTRIBUTION IS NEGATIVE / FROM -9.9910E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 1.1981E-05 (0): Neg. prob.

```
FILE  4
   SECTION  78
        DISTRIBUTION IS NEGATIVE
                FROM -9.9910E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  1.1981E-05
```

24. A probability distribution is negative. This is bad.
FILE 4 / SECTION 78 / DISTRIBUTION IS NEGATIVE / FROM -9.9877E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS 2.0087E-05 (0): Neg. prob.

```
FILE  4
   SECTION  78
        DISTRIBUTION IS NEGATIVE
                FROM -9.9877E-01 TO -1.0000E+00 NEGATIVE PROBABILITY IS  2.0087E-05
```

- `fudge-4.0` Warnings:

1. Missing a channel with a particular angular momenta combination
resonances / resolved / MultiLevel_BreitWigner (Error # 0): missingResonanceChannel

```
WARNING: Missing a channel with angular momenta combination L = 0, J = 1.5 and S = 1.5 for "capture"
```

2. Potential scattering hasn't converted, you need more L's!
resonances / resolved (Error # 1): potentialScatteringNotConverged

```
WARNING: Potential scattering hasn't converged by L=0 at E=500.0 eV, xs[0]/xs[0]=100.0% > 0.1%
```

3. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 0: total (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.40%
```

4. Cross section does not match sum of linked reaction cross sections
crossSectionSum label 1: nonelastic (Error # 0): CS Sum.

```
WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.93%
```

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 0 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (1.485873e-09) is too small
```

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 1 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (1.485873e-09) is too small
```

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 2 (total): / Form 'eval': / Component 0 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

8. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 2 (total): / Form 'eval': / Component 1 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

9. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 4 ((z,n)): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

10. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 5 (n[multiplicity:'2'] + Pu237): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 6 (n[multiplicity:'3'] + Pu236): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 7 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] [total fission]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 8 (Pu239 + gamma): / Form 'eval': / Component 0 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 8 (Pu239 + gamma): / Form 'eval': / Component 1 (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small
```

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.
Section 9 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] [total fission] [spectrum]): / Form 'eval': (Error # 0): Condition num.

```
WARNING: Ratio of smallest/largest eigenvalue (1.630277e-18) is too small
```

- `fudge-4.0` Errors:

1. Energy range of data set does not match cross section range
reaction label 5: n + Pu238_e5 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (607764.3 -> 30000000.0) vs (607764.4 -> 30000000.0)
```

2. Energy range of data set does not match cross section range
reaction label 8: n + Pu238_e8 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (776074.5 -> 30000000.0) vs (776074.6 -> 30000000.0)
```

3. Energy range of data set does not match cross section range
reaction label 11: n + Pu238_e11 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Domain mismatch (a)

```
WARNING: Domain doesn't match the cross section domain: (972202.0 -> 30000000.0) vs (972202.1 -> 30000000.0)
```

4. Found a negative probability
reaction label 20: n + Pu238_e20 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.014378905
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.0354191575
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0299153675
```

5. Found a negative probability
reaction label 21: n + Pu238_e21 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0190696121094
```

6. Found a negative probability
reaction label 22: n + Pu238_e22 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.0122411345
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.0344512015
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0320938455
```

7. Found a negative probability
reaction label 23: n + Pu238_e23 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.010094221
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.03261195
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.031771379
```

8. Found a negative probability
reaction label 24: n + Pu238_e24 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.0083420925
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.03142334
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.032271436
```

9. Found a negative probability
reaction label 25: n + Pu238_e25 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.007088408
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.0304786695
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.032319025
```

10. Found a negative probability
reaction label 26: n + Pu238_e26 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.0060279965
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.029803477
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0326812805
```

11. Found a negative probability
reaction label 27: n + Pu238_e27 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.003736594
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.0282414245
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.033106588
```

12. Found a negative probability
reaction label 28: n + Pu238_e28 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 2.6e7 eV, worst case: -0.0019773955
WARNING: Negative probabilities encountered. Incident energy: 2.8e7 eV, worst case: -0.02702282805
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0333330345
```

13. Found a negative probability
reaction label 30: n + Pu238_e30 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0156766365552
```

14. Found a negative probability
reaction label 31: n + Pu238_e31 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0132587147807
```

15. Found a negative probability
reaction label 32: n + Pu238_e32 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0115435049671
```

16. Found a negative probability
reaction label 33: n + Pu238_e33 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0100239623806
```

17. Found a negative probability
reaction label 34: n + Pu238_e34 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0086386612273
```

18. Found a negative probability
reaction label 35: n + Pu238_e35 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.00777438004376
```

19. Found a negative probability
reaction label 36: n + Pu238_e36 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.0068567313146
```

20. Found a negative probability
reaction label 37: n + Pu238_e37 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.00586970019895
```

21. Found a negative probability
reaction label 38: n + Pu238_e38 / Product: n / Distribution: / angularTwoBody - XYs2d: (Error # 0): Negative prob.

```
WARNING: Negative probabilities encountered. Incident energy: 3.e7 eV, worst case: -0.00515914617495
```

22. Calculated and tabulated Q values disagree.
reaction label 40: n[multiplicity:'2'] + Pu237 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -6952783.696685791 eV vs -7000511. eV!
```

23. Calculated and tabulated Q values disagree.
fissionComponent label 0: /reactionSuite/fissionComponents/fissionComponent[@label='0'] (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 222681313367.5912 eV vs 2.003568e8 eV!
```

24. Calculated and tabulated Q values disagree.
fissionComponent label 1: /reactionSuite/fissionComponents/fissionComponent[@label='1'] (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 222681313367.5912 eV vs 2.003568e8 eV!
```

25. Calculated and tabulated Q values disagree.
fissionComponent label 2: /reactionSuite/fissionComponents/fissionComponent[@label='2'] (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 222681313367.5912 eV vs 2.003568e8 eV!
```

26. Calculated and tabulated Q values disagree.
fissionComponent label 3: /reactionSuite/fissionComponents/fissionComponent[@label='3'] (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: 222681313367.5912 eV vs 2.003568e8 eV!
```

- `njoy2012` Warnings:

  1. In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.
     heatr...prompt kerma (0): HEATR/hinit (3)

     ```
     ---message from hinit---mt19 has no spectrum
                             mt18 spectrum will be used.
     ```

  2. Recoil is not given, so one-particle recoil approximation used.
     heatr...prompt kerma (1): HEATR/hinit (4)

     ```
     ---message from hinit---mf6, mt 37 does not give recoil za= 94235
                             one-particle recoil approx. used.
     ```

  3. There is a problem with the fission energy release.
     heatr...prompt kerma (2): HEATR/nheat (3)

     ```
     ---message from nheat---changed q from   2.003568E+08 to   1.899748E+08
                             for mt  18
     ```

  4. The number of coefficients is too big.
     covr...process covariance data (1): COVR/matshd (3)

     ```
     ---message from matshd---   2 coefficients > 2
                             reset and continue
     ```

  5. The number of coefficients is too big.
     covr...process covariance data (2): COVR/matshd (3)

     ```
     ---message from matshd---  12 coefficients > 2
                             reset and continue
     ```

- `njoy2012` Errors:

  1. An angular distribution is negative
     acer...monte carlo neutron and photon data (0): Neg. P(Ejμ) (b)

     ```
     ---message from ptleg2---negative probs found
                                1 for mt= 70 e= 2.600E+07
     ```

  2. An angular distribution is negative
     acer...monte carlo neutron and photon data (1): Neg. P(Ejμ) (b)

     ```
     ---message from ptleg2---negative probs found
                                2 for mt= 70 e= 2.800E+07
     ```

  3. An angular distribution is negative
     acer...monte carlo neutron and photon data (2): Neg. P(Ejμ) (b)

     ```
     ---message from ptleg2---negative probs found
                                2 for mt= 70 e= 3.000E+07
     ```

  4. An angular distribution is negative
     acer...monte carlo neutron and photon data (3): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           30 for mt= 71 e= 3.000E+07
```

5. An angular distribution is negative
   acer...monte carlo neutron and photon data (4): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            1 for mt= 72 e= 2.600E+07
```

6. An angular distribution is negative
   acer...monte carlo neutron and photon data (5): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 72 e= 2.800E+07
```

7. An angular distribution is negative
   acer...monte carlo neutron and photon data (6): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 72 e= 3.000E+07
```

8. An angular distribution is negative
   acer...monte carlo neutron and photon data (7): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            1 for mt= 73 e= 2.600E+07
```

9. An angular distribution is negative
   acer...monte carlo neutron and photon data (8): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 73 e= 2.800E+07
```

10. An angular distribution is negative
    acer...monte carlo neutron and photon data (9): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 73 e= 3.000E+07
```

11. An angular distribution is negative
    acer...monte carlo neutron and photon data (10): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            1 for mt= 74 e= 2.600E+07
```

12. An angular distribution is negative
    acer...monte carlo neutron and photon data (11): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 74 e= 2.800E+07
```

13. An angular distribution is negative
    acer...monte carlo neutron and photon data (12): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 74 e= 3.000E+07
```

14. An angular distribution is negative
acer...monte carlo neutron and photon data (13): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              1 for mt= 75 e= 2.600E+07
```

15. An angular distribution is negative
acer...monte carlo neutron and photon data (14): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              2 for mt= 75 e= 2.800E+07
```

16. An angular distribution is negative
acer...monte carlo neutron and photon data (15): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              2 for mt= 75 e= 3.000E+07
```

17. An angular distribution is negative
acer...monte carlo neutron and photon data (16): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              1 for mt= 76 e= 2.600E+07
```

18. An angular distribution is negative
acer...monte carlo neutron and photon data (17): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              1 for mt= 76 e= 2.800E+07
```

19. An angular distribution is negative
acer...monte carlo neutron and photon data (18): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              2 for mt= 76 e= 3.000E+07
```

20. An angular distribution is negative
acer...monte carlo neutron and photon data (19): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              1 for mt= 77 e= 2.600E+07
```

21. An angular distribution is negative
acer...monte carlo neutron and photon data (20): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              1 for mt= 77 e= 2.800E+07
```

22. An angular distribution is negative
acer...monte carlo neutron and photon data (21): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                              2 for mt= 77 e= 3.000E+07
```

23. An angular distribution is negative
acer...monte carlo neutron and photon data (22): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            1 for mt= 78 e= 2.600E+07
```

24. An angular distribution is negative
acer...monte carlo neutron and photon data (23): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            1 for mt= 78 e= 2.800E+07
```

25. An angular distribution is negative
acer...monte carlo neutron and photon data (24): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            2 for mt= 78 e= 3.000E+07
```

26. An angular distribution is negative
acer...monte carlo neutron and photon data (25): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           28 for mt= 80 e= 3.000E+07
```

27. An angular distribution is negative
acer...monte carlo neutron and photon data (26): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           26 for mt= 81 e= 3.000E+07
```

28. An angular distribution is negative
acer...monte carlo neutron and photon data (27): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           24 for mt= 82 e= 3.000E+07
```

29. An angular distribution is negative
acer...monte carlo neutron and photon data (28): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           22 for mt= 83 e= 3.000E+07
```

30. An angular distribution is negative
acer...monte carlo neutron and photon data (29): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           22 for mt= 84 e= 3.000E+07
```

31. An angular distribution is negative
acer...monte carlo neutron and photon data (30): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           20 for mt= 85 e= 3.000E+07
```

32. An angular distribution is negative
acer...monte carlo neutron and photon data (31): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                           19 for mt= 86 e= 3.000E+07
```

33. An angular distribution is negative
acer...monte carlo neutron and photon data (32): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            18 for mt= 87 e= 3.000E+07
```

34. An angular distribution is negative
acer...monte carlo neutron and photon data (33): Neg. P(Ejμ) (b)

```
 ---message from ptleg2---negative probs found
                            17 for mt= 88 e= 3.000E+07
```